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# TECHNICAL EFFECTIVENESS* OF U.S. INTERNATIONAL BROADCASTS TO THE EUROPEAN SOVIET BLOC (as of 15 June 1957)

The specific questions and answers given below are a summary of trends in signal effectiveness and jamming prepared as a pre-conference paper for the Schramm Conference which will be held 9-13 September to discuss the question, "How can we sum up where we are and what changes and what developments seem to be called for in our broadcasting?"

Caution: These conclusions should be used with caution since they are based for the most part upon information derived from monitors maintained at peripheral check points. Such information is considered valid for adjacent parts of the target area, but the specific area of validity has not been established. In some instances, the target areas are close to the check point, but in other instances the distance is great. It is clear that such checks will not indicate the situation in the target area in the neighborhood of local (ground-wave) jamming stations. Peripheral checks are generally more valid for high frequency than for medium or low frequency broadcasts.

## General Comments

1. Albanian is the one Soviet Bloc language which is not being deliberately jammed.

2. Persian and Turkish are the two non-Bloc languages which appear to be deliberately jammed on all frequencies. German is being jammed on medium and low frequencies.

3. Comments concerning reception as given below do not include the availability of signals in languages other than the native language within a target area. It should be mentioned that, if a listener within a specific target area can understand a non-native language, he would have a good chance of obtaining a satisfactory signal in this second language. German (on high frequency) and English are not (as of March 1957) being deliberately jammed. It is known that even in Moscow, languages such as Polish and Czech are frequently audible.

*By technical effectiveness is meant the measure of the availability of a satisfactory signal in the target area for reception by an interested listener with a suitable receiver. The question of the effectiveness of the message of the program is not included here. Unless specifically mentioned otherwise, the comments are with respect to high-frequency broadcasting.

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Specific Questions and Answers

1. Has jamming increased or decreased during the year in each country and for each broadcaster? As between urban and rural areas?

In general, it is not possible to give an exact estimate of the increase or decrease of jammers in each country except on the basis of their effectiveness against each U.S. broadcaster. Jamming operations are directed against many other free-world broadcasters, and the relative jamming effort is not known. Emphasis on large, urban jamming efforts is still evident whereas rural areas continue to be dependent upon distant jammers, in many cases located in another Bloc country. However, in the following instances, information from intelligence sources gives an indication of changes in the jamming operation.

Poland. Jamming by Polish-located jammers ceased in October 1956 and as of June 1957 had not resumed.

Hungary. Jamming from within Hungary was disrupted in October by the revolution, but by February the system within Hungary appeared to have been restored.

East Germany. The medium-wave jamming system in East Germany is being augmented and improved.

All Other European Soviet-Bloc Countries including USSR. It is believed that there has been neither a significant decrease nor increase in the number of jammer stations in the USSR, Czechoslovakia, Rumania, and Bulgaria. The jamming system appears to have reached a plateau. Present and future efforts will probably be directed to improving the efficiency of the present operations.

2. Has jamming increased or decreased in effectiveness during the year? Has the increase or decrease in effectiveness been the same or different as between VOA, RFE, and RLN? As between rural and urban areas?

The effectiveness of the jamming system as a whole appeared to decrease in the fall of 1956. This was probably due to the following: The cessation of jamming from within Poland, partial disruption of the jamming system within Hungary, and a redistribution of effort by the USSR to cover the increased broadcasting into Hungary with consequently less jamming against some of the other languages. It appears, however, that by February-March 1957 the system had reoriented itself sufficiently to take care of most broadcasts at least as effectively as pre-October or more effectively.

The cessation of jamming from within Poland has meant decreased jamming of Polish broadcasts, but Polish broadcasts are still being jammed to some extent by USSR-located jammers.

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3. What is the best estimate you can give of signal effectiveness of each of the broadcasters in each of these countries?

a. In languages of the USSR

(1) Russian

VOA -- It is estimated that about 30 percent of the Russian-language programs and about 15 percent of the transmissions are audible in rural areas near the western borders of the USSR. Reception in rural areas further east is probably worse. In Moscow during 1956, 5 percent of the programs were audible. Reception in other large urban areas is probably similar to reception in Moscow.

Estimates of reception within the USSR are complicated by the types of receivers available. It is estimated that about 15-20 percent of the Russian-language programs can be received in the rural areas on the most representative types of Russian receivers (i.e., on frequencies below 12 mc/s).

RLN -- It is believed that reception of RLN Russian broadcasts is poorer than reception of VOA Russian broadcasts in rural areas of western USSR. Monitoring reports from the embassy in Moscow and some other urban locations indicate virtually no satisfactory reception.

(2) Other Languages Broadcast to the USSR

VOA -- Reception within the USSR of the other languages broadcast to the USSR is estimated to be better than reception of Russian. VOA has programs in Armenian, Georgian, Estonian, Latvian, Lithuanian, Ukrainian, and Uzbek. It is estimated that between 40 and 80 percent of these programs and between 10 and 35 percent of the transmissions of these languages are audible in their respective target areas with Estonian, Latvian, and Lithuanian probably received the most frequently and with Armenian received the least frequently.

RLN -- RLN has programs in six Caucasus languages as well as in Ukrainian, in Byelorussian, and in Tatar-Bashkir. Since October 1956, there has been a noticeable improvement in reception of the Caucasus languages as monitored at Trabzon, Turkey. It is estimated that about 50 percent of the programs and about 40 percent of the transmissions were audible in the rural areas of the Caucasus in March. Because of the distance from the monitoring locations to the target areas, monitoring of Byelorussian and Ukrainian has been very light, and monitoring of Tatar-Bashkir has not been done. Thus, it is virtually impossible to estimate technical effectiveness within the target areas.

b. In Satellite Languages

(1) Albanian

VOA -- Broadcasts in Albanian are not deliberately jammed and are highly effective. It is estimated that almost all programs and about 70-80 percent of the transmissions are audible in Albania.

(2) Bulgarian

VOA -- It is estimated that 80-90 percent of the programs and over half of the transmissions are audible in rural areas of Bulgaria. Reports from Sofia indicate that

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about 2/3 of the programs and about 1/4 of the transmissions were audible in 1956, but by March only the highest of the short-wave frequencies were audible in Sofia. This is probably typical of the worst receiving conditions in Bulgaria.

RFE -- In 1956, over 95 percent of the programs and between 50 and 70 percent of the transmissions were audible at the peripheral monitoring locations, and it is estimated that reception in rural areas of Bulgaria was similar. Since January 1957, there has been decreased reception and increased jamming. As of March, it is estimated that between 80 and 85 percent of the programs and 35-55 percent of the transmissions are received satisfactorily in rural areas of Bulgaria.

(3) Czech-Slovak

VOA -- Effectiveness of Czech-Slovak broadcasts in March 1957 was about the same as it had been in March 1956. Effectiveness was higher in October but has not varied greatly during the last year. About 95 percent of the programs and about 55 percent of the transmissions are probably audible in rural areas. Reception in urban areas is probably very, very poor.

RFE -- Effectiveness of RFE Czech-Slovak broadcasts has been little different from month to month since July 1956. It is estimated that most programs and about half of the transmissions can be received in rural areas. Reception in most urban areas would be exceedingly difficult because of the extensive ground-wave jamming system within the country.

(4) Hungarian

VOA -- It is estimated that about 80 percent of the programs and about 45-50 percent of the transmissions of VOA Hungarian-language programs are audible in rural areas of Hungary. Reception in urban areas was about the same as in rural areas from October through January but by March had undoubtedly deteriorated.

RFE -- Immediately after the Hungarian uprising, effectiveness of RFE rose sharply, but by March it had dropped back to less than it has been at any time during 1956 (as monitored at peripheral locations). Reports from



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within Budapest indicated that reception remained good in Budapest until February when local jamming again made reception very difficult. It is estimated that in March about 95 percent of the programs and about 40-50 percent of the transmissions could be received satisfactorily in rural areas. It appears likely that reception at the present time is worse than it has been in the last two years.

Reports from Hungarian refugees in November indicated that there was very extensive listening to both RFE and VOA in Hungary, both before and after the October uprising.

(5) Polish

VOA -- Deliberate jamming of Polish by Polish-located jammers ended in October 1956 and had not resumed as of June 1957. It is estimated that all programs and about 60 percent of the transmissions are audible in both urban and rural areas of Poland. Jamming of Polish by USSR-located jammers has continued.

RFE -- The situation for RFE Polish programs is estimated to be the same as for VOA.

(6) Rumanian

VOA -- About 75 percent of the programs and about 45 percent of the transmissions in the Rumanian language are probably audible within rural areas of Rumania. Little is known about reception in urban areas, but is is probably much poorer than reception in rural areas.

RFE -- Effectiveness of Rumanian broadcasts has been very similar to reception of Bulgarian broadcasts. It is estimated that in March 1957 about 80-85 percent of the programs and probably 35-55 percent of the transmissions were audible in rural areas. Reception in urban areas would be poorer. Reception is estimated to be worse than during 1956.

4. Recommendations to improve monitoring of European Soviet-Bloc languages.

More monitoring from within the Soviet Bloc countries is necessary to assess technical effectiveness more accurately and adequately. This increased monitoring should, in general, fall into the following two categories:

a. Increased monitoring of the language of the country during travel in order that reception in various parts of the country (both urban and rural) can be assessed. This should include monitoring of the minority languages in the USSR while traveling in these sections.

b. Increased monitoring at the embassies to include not only the language of the country but languages spoken in adjacent countries as well. For instance, Warsaw can be considered as peripheral to Byelorussia, Lithuania, and Latvia. At the present time, RLN Byelorussian is monitored only occasionally since no peripheral monitor is close to that area. VOA Lithuanian and Latvian are monitored only at Helsinki.

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5. Definitions of terms.

Technical effectiveness has been discussed in terms of two percentages--percent of programs satisfactorily received and percent of transmissions satisfactorily received. These two percentages generally have different values since one program is usually broadcast by more than one transmitter. The program is considered satisfactorily received if it is audible on at least one of the frequencies used.

To clarify this idea, consider the following example. On a specific day at a specific time, VOA broadcasts a program into Poland. Assume then that ten frequencies are used for this one program (there are ten transmissions involved) and that two of the frequencies are audible in Warsaw. The percent of satisfactory programs is 100 (the program could be heard in Warsaw) but the

percent of satisfactory transmissions is 20 (only two of ten transmissions were audible). Extending this idea, assume that a different program is broadcast each day during a month. As long as at least one transmission can be heard each day, 100 percent of the programs will be heard. Only when on some day none of the transmissions are audible in Warsaw will the monthly percent of satisfactory programs drop below 100 percent.